# Louisville Metro Air Pollution Control District

**850 Barret Ave., Louisville, Kentucky 40204**
**Xx xx 2015**

# Federally Enforceable District Origin Operating Permit Statement of Basis

**Company:** NHK Spring Precision of America, Inc.

**Plant Location:** 10600 Freeport Drive, Louisville, Kentucky 40258

**Date Application Received:** 09/29/2008

**Date of Public Notice:** 02/19/2015

**District Engineer:** Shannon Hosey **Permit No:** O-1568-15-F

**Plant ID:** 1568 **SIC Code:** 3493 **NAICS**: 332613 **AFS:** 1568

**Introduction:**

This permit will be issued pursuant to District Regulation 2.17- *Federally Enforceable District Origin Operating Permits*. Its purpose is to limit the plant wide potential emission rates from this source to below major source threshold levels and to provide methods of determining continued compliance with all applicable requirements.

Jefferson County is classified as an attainment area for lead (Pb), nitrogen dioxide ($NO_2$), carbon monoxide (CO), 1 hr and 8 hr ozone ($O_3$), and particulate matter less than 10 microns ($PM_{10}$); is a non-attainment area for particulate matter less than 2.5 microns ($PM_{2.5}$): and partial non-attainment area for sulfur dioxide ($SO_2$).

**Application Type/Permit Activity:**

[X] Initial Issuance

[ ] Permit Revision
- [ ] Administrative
- [ ] Minor
- [ ] Significant

[ ] Permit Renewal

**Compliance Summary:**

[ ] Compliance certification signed
[ ] Compliance schedule included
[ ] Source is out of compliance
[X] Source is operating in compliance

## I. Source Information

**1. Product Description:** NHK Spring Precision manufactures steel valve springs and steel transmission springs from purchased steel wire that arrives at the plant in large bundles/spools.

**2. Process Description:** Spring Manufacturing

**3. Site Determination:** There are no other facilities that are contiguous or adjacent to this facility

**Emission Unit Summary**:

| Emission Unit | Equipment Description |
|---|---|
| U1 | Edge Grinder, Daisho Seiki Co, model GMV4-915<br>Chamfering Maching, Asahi Seikim model AA<br>Edge Grinder, Asahi Seiki, model AGI2N<br>Edge Grinder, Asahi Seiki, model AGI2N<br>Shot Peening Machine, Sinto Kogio, model SNB-50W with Internal Baghouse<br>Shot Peening Machine, Sinto Kogio, model SNB-30 with Internal Baghouse<br>Edge Grinder, Daisho Seiki Co, model GMV4-915<br>Chamfering Machine Custom<br>Chamfering Machine Custom<br>Shot Peening Machine, Sinto-Kogio, model SNB-30 with Internal Baghouse<br>Shot Peening Machine, Sinto-Kogio, model SNB-30 with Internal Baghouse<br>Shot Peening Machine, Sinto-Kogio, model SNB-30 with Internal Baghouse<br>Shot Peening Machine, Sinto-Kogio, model SNB-30 with Internal Baghouse<br>Edge Grinder, Daisho Seiki Co, model GMV4-915<br>Edge Grinder, Daisho Seiki Co, model GMV4-915<br>Continuous Shot Peening Machine, Itoh Kikoh, model IMD 27<br>Pre-shot Peening Machine, Sinto Kogio, model SNB-30Y with Internal Baghouse<br>Shot Blaster (Dry Horning), Sinto Kogio, model NCF-64U1R<br>Cooling Tower |
| U2 | Edge Grinder (C14), Asahi-Seiki, model AG12N<br>Edge Grinder (C-15), Asahi-Seiki, model AG12N<br>Edge Grinder (C-16), Asahi-Seiki, model AG12N<br>Chamfering Machine (C-17), Asahi-Seiki, model AG12N<br>Edge Grinder (C18), Asahi-Seiki, model AG12N<br>Edge Grinder (C19), Asahi-Seiki, model AG12N |
| U3 | Inspection Machine<br>Inspection Machine<br>Inspection Machine<br>Inspection Machine |
| IA-1 | Parts Washer with no secondary reservoir |

**4. Fugitive Sources:** There are no fugitive source emissions at this facility.

**5. Permit Revisions**:

| Revision No. | Issue Date | Public Notice Date | Type | Attachment No./Page No. | Description |
|---|---|---|---|---|---|
| Initial | xx/xx/2015 | 02/19/2015 | Initial | Entire Permit | Initial Issuance |

**6. Emission Summary**:

| Pollutant | Company Actual Emissions (tn/yr) 2008 Data | Pollutant that triggered Major Source Status (based on PTE) |
|---|---|---|
| **CO** | 0.11 | No |
| **$NO_x$** | 0.141 | No |
| **$SO_2$** | 0.001 | No |
| **$PM_{10}$** | 11.047 | Yes |
| **VOC** | 1.867 | No |
| **GHG – $CO_{2e}$** | 0 | No |
| **Single HAPs** | 0 | No |
| **Total HAP** | 0.355 | No |

**7. Applicable Requirements**:

[ ] PSD [X] 40 CFR 60 [X] SIP [X] 40 CFR 63
[ ] NSR [ ] 40 CFR 61 [X] District-Origin [X] Other

**8. MACT Requirements:** The source has no future MACT requirements.

**9. Referenced Federal Regulations in Permit**: None

## II. Regulatory Analysis

**1. Acid Rain Requirements**: NHK Spring Precision is not subject to the Acid Rain Program.

**2. Stratospheric Ozone Protection Requirements**: Title VI of the CAAA regulates ozone depleting substances and requires a phase-out of their use. This rule applies to any facility that manufactures, sells, distributes, or otherwise uses any of the listed chemicals. NHK Spring Precision does not manufacture, sell, or

distribute any of the listed chemicals. The source's use of listed chemicals is that in fire extinguishers, chillers, air conditioners and other HVAC equipment.

**3. Prevention of Accidental Releases 112(r):** NHK Spring Precision does not manufacture, process, use, store, or otherwise handle one or more of the regulated substances listed in 40 CFR Part 68, Subpart F, and District Regulation 5.15, *Chemical Accident Prevention Provisions*, in a quantity in excess of the corresponding specified threshold amount.

**4. 40 CFR Part 64 Applicability Determination:** NHK Spring Precision is not subject to 40 CFR Part 64 - *Compliance Assurance Monitoring for Major Stationary Sources*.

**5. Basis of Regulation Applicability**

a. **Plant-wide**

NHK Spring Precision is a potential major source for the pollutant $PM_{10}$. Regulation 2.17 – F*ederally Enforceable District Origin Operating Permits* establishes requirements to limit the plant wide potential emission rates to below major source threshold levels and to provide methods of determining continued compliance with all applicable requirements. Per Regulation 2.17, section 5.1, plant-wide PM emissions are limited to 100 tons during any consecutive 12-month period.

Regulation 2.17, section 5.2, requires monitoring and record keeping to assure ongoing compliance with the terms and conditions of the permit. The owner or operator shall maintain all the required records for a minimum of 5 years and make the records readily available to the district upon request.

Regulation 2.17, section 7.2, requires stationary sources for which a FEDOOP is issued shall submit an Annual Compliance Certification by April 15, of the following calendar year. In addition, as required by Regulation 2.17, section 5.2, the source shall submit an Annual Compliance Report to show compliance with the permit, by March 1 of the following calendar year. Compliance reports and compliance certifications shall be signed by a responsible official and shall include a certification statement per Regulation 2.17, section 3.5.

b. **STAR Program**

Regulations 5.00, 5.01, 5.21, and 5.23 (STAR Program) establish requirements for environmental acceptability of toxic air contaminants (TACs) and the requirement to comply with all applicable emission standards.

The source submitted an updated plant-wide STAR Environmental Acceptability Demonstration (EA Demo) received on May 01, 2013. The EA Demo used SCREEN3 air dispersion modeling for Category 1 TAC Nickel and Category 2 TAC Manganese. All other TACs for the grinding and chamfering of springs were found to be de minimis when controlled. For Nickel emitted from the grinder, the single process industrial property $R_C$ is 0.702 (max $EAG_C$, 10.0) and the single process residential property $R_C$ is 0.178 (max $EAG_C$, 1.0). For Nickel emitted from the chamfering machine, the single process industrial property $R_C$ is 0.151 (max $EAG_C$, 10.0) and the single process residential property $R_C$ is 0.036 (max $EAG_C$, 1.0). The cumulative industrial $R_C$ is 8.57 (max $EAG_C$, 38.0) and the cumulative residential $R_C$ is 2.15 (max $EAG_C$, 3.8). For Manganese, the single process industrial property HQ is 0.133 (max $EAG_C$, 10.0), single process residential property HQ is 0.034 (max $EAG_C$, 1.0), cumulative industrial HQ is 1.167 (max $EAG_C$, 38.0), and cumulative residential HQ is 0.297 (max $EAG_C$, 3.8). The cumulative industrial HQ is 0.652, which is below the applicable 3.0, and the cumulative residential HQ is 0.163, which is below 1.0. The environmental acceptability for this process, and this plant, has been demonstrated.

c. **Emission Unit U1 – Grinders, Chamfering, Peening Machines and Shot Blaster**

i. **Equipment:**

| Emission Point | Description Make/Model | Install Date | Applicable Regulation | Basis for Applicability |
|---|---|---|---|---|
| A-4 | Edge Grinder, Daisho Seiki Co, model GMV4-915 | 2006 | 7.08 | Regulation 7.08 establishes the requirements for PM emission from new processes that commences construction after September 1, 1976 |
| A-5 | Chamfering Machine Custom | 2006 | | |
| A-8 | Edge Grinder, Asahi Seiki, model AGI2N | 2006 | | |
| A-9 | Edge Grinder, Asahi Seiki, model AGI2N | 2008 | | |
| A-10 | Shot Peening Machine with Internal Baghouse | 2006 | | |
| A-12 | Shot Peening Machine with Internal Baghouse | 2006 | | |
| B-4 | Edge Grinder, Daisho Seiki Co, model GMV4-915 | 2007 | | |
| B-5A | Chamfering Machine Custom | 2007 | | |
| B-5B | Chamfering Machine Custom | 2007 | | |

| Emission Point | Description Make/Model | Install Date | Applicable Regulation | Basis for Applicability |
|---|---|---|---|---|
| B-6 | Shot Peening Machine, Sinto-Kogio, model SNB-30 with Internal Baghouse | 2007 | | |
| B-8 | Shot Peening Machine (B-8), Sinto-Kogio, model SNB-30 with Internal Baghouse | 2007 | | |
| C-6 | Shot Peening Machine, Sinto-Kogio, model SNB-30 with Internal Baghouse | 2008 | | |
| C-8 | Shot Peening Machine, Sinto-Kogio, model SNB-30 with Internal Baghouse | 2008 | | |
| D-4 | Edge Grinder, Daisho Seiki Co, model GMV4-915 | 2006 | | |
| D-5 | Edge Grinder, Daisho Seiki Co, model GMV4-915 | 2007 | | |
| D-6 | Continuous Shot Peening Machine, Itoh Kikoh, model IMD 27 | 2006 | | |
| GCN-5 | Pre-shot Peening Machine, Sinto Kogio, model SNB-30Y with Internal Baghouse | 2006 | | |
| SB-1 | Shot Blaster (Dry Horning) | 2006 | | |
| OS-1 | Cooling Tower | 2008 | | |

ii. **Standards/Operating Limits**

1) **PM/$PM_{10}$**

i. Regulation 2.17, section 5.1, allows the source to set a synthetic limit below the major source threshold. The source has requested a synthetic limit of less than 100 tons per of the pollutant $PM_{10}$ in a 12 consecutive month period.

ii. For equipment subject to Regulation 7.08 for PM, the PM emission standards are calculated per section 3.1.2. The equation to calculate the hourly PM emission limit is $E = 3.59 * P^{0.62}$, where E is the allowable lb/hr PM emission limit and P is the process weight rate expressed in tons/hr.

iii. Construction Permit 335-06-C limits B-6, B-8, C-6, C-8 to 1.15 lb/hr, D-6 to 3.12 lb/hr and GCN-5 to 4.80 lb/hr per Regulation 7.08.

iv. Construction Permit 333-06-C limits B-4 to 0.49 lb/hr, D-4 and D-5 to 0.98 lb/hr, A-8 and A-9 to 0.36 lb/hr and B-5A and B-5B to 0.585 lb/hr per Regulation 7.08.

2) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard of less than 20%.

3) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

d. **Emission Unit U2 – Grinders and Chamfering Machine**

i. **Equipment:**

| Emission Point | Description Make/Model | Applicable Regulation | Basis for Applicability |
|---|---|---|---|
| C-14 | Edge Grinder (C14), Asahi-Seiki, model AG12N | 7.08 | Regulation 7.08 establishes the requirements for PM emission from new processes that commences construction after September 1, 1976. |
| C-15 | Edge Grinder (C-15), Asahi-Seiki, model AG12N | | |
| C-16 | Edge Grinder (C-16), Asahi-Seiki, model AG12N | | |
| C-17 | Chamfering Machine (C-17), Asahi-Seiki, model AG12N | | |
| C-18 | Edge Grinder (C18), Asahi-Seiki, model AG12N | | |
| C-19 | Edge Grinder (C19), Asahi-Seiki, model AG12N | | |

ii. **Standards/Operating Limits**

1) **PM/$PM_{10}$**

i. Regulation 2.17, section 5.1, allows the source to set a synthetic limit below the major source threshold. The source has requested a synthetic limit of less

than 100 tons per of the pollutant $PM_{10}$ in a 12 consecutive month period.

ii. For equipment subject to Regulation 7.08 for PM, the PM emission standards are calculated per section 3.1.2. The equation to calculate the hourly PM emission limit is $E = 3.59 * P^{0.62}$, where E is the allowable lb/hr PM emission limit and P is the process weight rate expressed in tons/hr.

2) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard of less than 20%.

3) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

e. **Emission Unit U3 – Grinders and Chamfering Machine**

i. **Equipment:**

| Emission Point | Description Make/Model | Applicable Regulation | Basis for Applicability |
|---|---|---|---|
| A-17 | Inspection Machine | 7.08 and 7.59 | Regulation 7.08 establishes the requirements for PM emission from new processes that commences construction after September 1, 1976.<br><br>Regulation 7.59 establishes the requirements for VOC emissions from new processes that commence construction after May 20, 1981. |
| B-13 | Inspection Machine | | |
| C-13 | Inspection Machine | | |
| D-13 | Inspection Machine | | |

ii. **Standards/Operating Limits**

1) **VOC**

i. Regulation 7.59, section 3.1 specifies VOC content limits for all coatings used in the inspection machines.

ii. Construction Permit 347-05-C limits gallons of ink to 321 and gallons of anti-corrosion to 1286.

2) **PM/$PM_{10}$**

i. Regulation 2.17, section 5.1, allows the source to set a synthetic limit below the major source threshold. The source has requested a synthetic limit of less than 100 tons per of the pollutant $PM_{10}$ in a 12 consecutive month period.

ii. For equipment subject to Regulation 7.08 for PM, the PM emission standards are calculated per section 3.1.2. The equation to calculate the hourly PM emission limit is $E = 3.59 * P^{0.62}$, where E is the allowable lb/hr PM emission limit and P is the process weight rate expressed in tons/hr.

3) **Opacity**

Regulation 7.08, section 3.1.1 establishes an opacity standard of less than 20%.

4) **TAC**

Per Regulations 5.00 and 5.21, TAC emissions must not exceed environmentally acceptable levels.

## III. Other Requirements

**1. Temporary Sources:** The source did not request to operate any temporary facilities.

**2. Short Term Activities:** The source did not report any short term activities.

**3. Emissions Trading:** N/A

**4. Operational Flexibility**: The source did not request any operation flexibility.

**5. Compliance History:**

| Incid. # | Date | Regulation Violated | Result |
|---|---|---|---|
| 05050 | 11/05/2007 | Reg. 2.03, section 5, Failure to Comply with District Permit | Agreement with fine |

**6. Calculation Methodology or Other Approved Method:**

The PM emissions from the Grinders and Chamfering Machines must be calculated according to the following methodology or other method approved in writing by the District:

For the Edge Grinders:

$$PM_{SmallVSGrinder} = \left(\frac{\#\ springs}{month}\right)\left(\frac{lb}{spring}\right)(0.0849)\left(1 - CE_{Baghouse}\right)(1 - CE_{Filter})$$

For the Chamfering Machine:

$$PM_{Chamfering} = \left(\frac{\#\ springs}{month}\right)\left(\frac{lb}{spring}\right)(0.015)\left(1 - CE_{Baghouse}\right)(1 - CE_{Filter})$$

Where,

| | |
|---|---|
| # springs/month | = The sum of the daily number of each type of springs processed for each piece of equipment for the month. |
| lb/spring | = The average weight of each type of spring (0.0644 lb/spring for valve spring, VS, for grinding operations and 0.060 lb/spring for valve spring, VS, for chamfering operations). |
| EF (0.0849) | = Emission factor for the small valve spring grinders representing pounds of PM generated per pound of springs processed (lb PM/lb springs). |
| EF (0.015) | = Emission factor for the chamfering machine representing pounds of PM generated per pound of springs processed (lb PM/lb springs). |
| $CE_{Bagouse}$ | = 0.95 for baghouses, unless stack testing indicated a different value. |
| $CE_{Filter}$ | = 0.90 for other filters, unless stack testing indicates a different value. |

**7. FEDOOP Fee Comment**

The initial issuance and STAR De Minimis fee for a FEDOOP is $2,847.50 in accordance with the *Schedule of Fees* table in Regulation 2.08. This fee shall be paid to the District prior to the issuance of the permit.

| Fee Type | Amount |
|---|---|
| Permit Actions:<br>Significant Permit Revision (includes initial issuance) | $2,542.40 |
| STAR Program:<br>De Minimis Determination Only (Per TAC) | $305.10 |

**8. Insignificant Activities**

| Equipment | Quantity | PTE (tpy) | Basis for Exemption |
|---|---|---|---|
| Parts Washer (IA-1) | 1 | 0.424 VOC | Regulation 1.02, Appendix A |

1) Insignificant activities identified in District Regulation 1.02, Appendix A, may be subject to size or production rate disclosure requirements.

2) Insignificant activities identified in District Regulation 1.02, Appendix A, shall comply with generally applicable requirements.

3) Activities identified in Regulation 1.02, Appendix A, may not require a permit and by insignificant with regard to application disclosure requirement but may still have generally applicable requirements that continue to apply to the source and must be included in the permit.

4) Emissions from Insignificant Activities shall be reported in conjunction with the reporting of annual emissions of the facility as required by the District.

5) In lieu of recording annual throughputs and calculating actual annual emissions, the owner or operator may elect to report the pollutant Potential To Emit (PTE) quantity listed in the Insignificant Activities table, as the annual emission for each piece of equipment.

6) The owner or operator shall annually submit an updated list of insignificant activities, including an identification of the additions and removals of insignificant activities that occurred during the preceding year, with the

compliance certification due April 15th.

a. **Emission Unit IA-1 – Cold Solvent Wash with no secondary reservoir**

i. **Equipment**

| Emission Process | Description | Applicable Regulations | Basis for Applicability |
|---|---|---|---|
| IA-1 | Cold Solvent Parts Washer | 6.18 | Applies to each cold cleaners, open top vapor degreasers, and conveyorized degreasers that use volatile organic compounds (VOCs) to remove soluble impurities from metal surfaces. |

ii. **Standards/Operating Limits**

1) **VOC**

Per Regulation 6.18, the owner or operator shall observe specific operating requirements, and shall not operate a cold cleaner using a solvent with a vapor pressure that exceeds 1.0 mm Hg (0.019 psi) measured at 20°C (68°F).